

L1630000000 - St. Clair County
SHANFELD IRON & METAL COMPANY
ILD000000000
HRS/SF

CERCLA

Pre-Cerclis Screening Action



Illinois Environmental
Protection Agency

EPA Region 6 Records Ctr.



295020

PRE-CERLIS SCREENING ASSESSMENT

for:

**SHANFELD IRON & METAL COMPANY
EAST ST. LOUIS, ILLINOIS**

ILD (PENDING)

**PREPARED BY:
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF LAND
FEDERAL SITE REMEDIATION SECTION
SITE ASSESSMENT UNIT**

MARCH 30, 2004

Site Recommendation

The author of this report recommends that the Shanfeld Iron & Metal Company site (ILD Pending) be placed on CERCLIS for further evaluation. The recommendation is a direct result of the PCS Assessment investigation conducted at the property on September 12, 2003. The investigation included collection of XRF soil samples throughout the Shanfeld property, including samples of unknown material at several locations on concrete flooring within the former plant building. Removal Action Levels for lead were exceeded at sixteen sample locations, RALs for iron were exceeded at three locations. Placing the site on CERCLIS will allow a determination to be made for a possible removal action. Also, further investigation is required to determine if there are other potential sources of contamination that may remain on the property resulting from potential improper waste disposal during the years the site was used as a foundry and smelter. The potential also exists that undiscovered underground storage tanks or undetected contaminants from the empty drums remain on the property.

PRE-CERCLIS SCREENING ASSESSMENT
SHANFELD IRON & METAL COMPANY

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
1.0 Introduction	1
Introduction	
2.0 Site Background	2
2.1 Site Description	2
2.2 Site History	4
3.0 Field Investigation Activities	7
3.1 Field Inspection.....	7
3.2 X-Ray Fluorescence (XRF) Survey Results	8
4.0 Migration Pathways	9
4.1 Groundwater	9
4.2 Surface Water	10
4.3 Soil Exposure	11
4.4 Air Route	12
5.0 References	13

Figures and Tables

Figure 1	Site Location Map
Figure 2	Site Topographic Map
Figure 3	Site Area Map
Figure 4	Shanfeld Iron & Metal Company Map
Figure 5	XRF Location Map
Table 1	Soil Sample Summary

APPENDIX A	Sanborn Fire Insurance Maps 1905, 1944, 1955
-------------------------	---

1.0 INTRODUCTION

INTRODUCTION

On October 18, 2002, the Illinois Environmental Protection Agency's (IEPA) Office of Site Evaluation was tasked by the U.S. Environmental Protection Agency (USEPA) Region V to conduct a Pre-CERCLIS Screening Assessment (PCS) of the Shanfeld Iron & Metal Company facility located in East St. Louis, Illinois. The PCS was performed under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) commonly known as Superfund.

The Pre-CERCLIS Screening Assessment was designed to tentatively identify potential sources of contamination, and if present, determine if they pose the potential to adversely impact nearby residents or the surrounding environment. If during the course of this investigation a determination is made that the site possesses the potential to significantly impact human health and/or the environment, the site will be entered into EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) and progress through the Superfund process. The PCS evaluation will also collect enough data to complete the Pre-CERCLIS Screening Assessment Checklist Form (Attachment A, under separate cover of PRESCORE). IEPA's OSE conducted the Pre-CERCLIS investigation of the Shanfeld facility as a result of a request by USEPA Region V to further investigate this site.

2.0 SITE BACKGROUND

2.1 SITE DESCRIPTION

On September 12, 2003 personnel from the Illinois Environmental Protection Agency's (IEPA) Office of Site Evaluation (OSE) conducted a Pre-CERCLIS (Comprehensive Environmental Response, Compensation, and Liability Inventory System List) Screening Assessment reconnaissance and evaluation of the Shanfeld Iron & Metal Company facility located in East St. Louis, Illinois. Shanfeld Iron & Metal Company is an inactive, abandoned metal producing operation located at 1530 Converse Avenue, East St. Louis, Illinois in Canteen Township, St. Clair County (see Figures 1 & 2). Shanfeld is located in the southwestern portion of East St. Louis, one and one half blocks south of Broadway Avenue on 15th Street. Company operations consisted of smelting iron ore and lead ore into bulk units available for shipping to customers. It is currently not known if any metal fabrication processes were carried out at this facility. The facility structure, driveway and parking areas occupy a rectangular shaped property on approximately 3 acres of land at the mentioned location. The company is situated in an urban setting within the City of East St. Louis. Bordering the property on the northwest is 15th Street, beyond which is a small scrap yard; on the northeast is the Norfolk and Southern Railroad tracks, beyond which is vacant ground; on the south and southeast is property owned by Lefton Iron and Metal Company, beyond which is 17th Street; and to the southwest is property only known, at this time, as McCloud, beyond which is a spur of the Norfolk and Western RR and Converse Avenue (Figure 3).

The site consists of a large, 2½ to 3 story abandoned, brick building with a loading dock

along the south half of the northeast side of the structure, surrounded by young to mature trees, overgrown brush and weeds, with a graveled area between the building and the Norfolk and Southern railroad tracks. A gravel driveway exists along the northwest portion of the building, along with what appears to be either concrete parking areas or a concrete floor of another building formerly situated along the northwest side of the driveway and the Shanfeld structure. The terrain of the property is flat and partially to heavily vegetated near perimeter areas and immediately adjacent to the structure. Vegetated areas consist of various types and sizes of grasses, weeds, and trees. Grass and weeds associated with the vegetated areas are sparse and mostly along the northeastern portion of the property. Trees are located along the southeast, southwest and northwest walls of the building with additional tree growth extending out to the perimeter of the property in those directions.

The Shanfeld Iron & Metal Company property is situated in close proximity to residential neighborhoods. The closest residential areas are located one block beyond the indicated bordering properties to the west, southwest, south, and southeast. No residential dwellings, schools or daycare facilities are within two hundred feet of the property. Within four miles of the property, land use consists primarily of residential and manufacturing/light industrial with some commercial/retail also scattered throughout. At least six grade schools and one high school (Lincoln High School) are within one mile (5280 feet) of the property. Two of the grade schools are within one-quarter mile (1320 feet) of the property. One of these two grade schools is located northeast of Shanfeld, the other is southwest. Lincoln High School is approximately 2800 feet west of the Shanfeld property.

The northeast portion of the property can be accessed by vehicle from 15th Street at the northeast corner of the property and by pedestrian traffic from the northeast (along the railroad tracks). Access to other portions of the property can be gained via a small area along the northwest, and from the southwest (through the McCloud property). Fences are present along most of the northwest property perimeter and the entire south perimeter. No fence exists between the Shanfeld and McCloud properties. Fencing does exist around the remainder of the McCloud property, however, a few breaches in the fence along McCloud's southwest perimeter allows access to McCloud and Shanfeld properties. Access into the deteriorating building is easily accomplished through an open loading dock doorway and through various other poorly secured doors.

The surface water runoff route for this property consists of runoff flowing into low areas on the property and ponding, or flowing to city streets where curb storm drains direct flow into the City of East St. Louis sewer system.

2.2 SITE HISTORY

There is very little available information regarding the history of the Shanfeld Iron & Metal Company facility.

An investigation conducted at the State of Illinois Archives revealed no information on the company. There was no information on incorporation or dissolution of the company. The St. Clair County Clerks office did not have any record of Shanfeld Iron & Metal Company. A search of Sanborn Fire Insurance Maps, located at the Illinois State Library, indicated that the

land bordered by 15th St., Converse Av., Norfolk and Southern R.R., and 17th St. was originally the site of the Missouri Malleable Iron Company. Sanborn Maps (Appendix A) from 1905 indicate that the company had structures constructed over most of the approximately 10 acres delineated above. Structures included an office, a foundry, annealing building, a core house, a grinding and finishing building, and others. No information was found indicating when this company began operating at this location. Based on an East St. Louis Industrial Index published in 1936, at some point between 1906 and 1936 Missouri Malleable ceased business and its structures razed. Shanfeld Iron & Metal was listed in the 1936 Index at this location. Without similar Index listings between the 1905 – 1936 time period it is unclear exactly when the Shanfeld facility was constructed. However, during the site reconnaissance a date of 1914 was noted on two ornamental stone gate posts at the northwest corner of the Shanfeld building, which may indicate the year of construction.

According to the St. Clair County Assessors Office, in 1936 the Shanfeld Iron & Metal Company property encompassed the north 6 acres of the former Missouri Malleable property, Lefton Iron & Metal purchased the south 4 acres. According to 1944 & 1955 Sanborn Fire Insurance Maps structures built on the Shanfeld property consisted of three brick buildings. The function of each was listed as storage and warehouse facilities. Each was constructed of brick with steel beam roof supports. The roof was constructed of concrete over steel beams. The inside walls were plastered. The 6 acre property was eventually split into three parcels. The western two were sold to an individual named McCloud, who remains the present owner. The eastern most parcel, consisting of 2.24 acres, remained the property of Shanfeld Iron & Metal

owned by Mr. Ben Shanfeld. No information has been found indicating when operations ceased at this facility. At this writing the Assessors office indicates that the Shanfeld property is owned by Claudia Davis and all taxes are paid.

3.0 FIELD INVESTIGATION ACTIVITIES

3.1 FIELD INSPECTION

A CERCLA pre-remedial site reconnaissance was conducted on September 12, 2003, by personnel of the Office of Site Evaluation (OSE) of the Illinois Environmental Protection Agency (IEPA). A site reconnaissance of the Shanfeld Iron & Metal Company property and the surrounding area was conducted to determine the physical property boundaries and survey the properties at its perimeters. The survey of the surrounding area was done to determine land usage of the neighboring properties as well as any pathway or receptors that potentially may be affected by the site. As mentioned, the site was observed to be flat, with some areas overgrown with vegetation and not entirely fenced. The site is open to the public and the building is easily accessible. The building is rectangular, measuring approximately 400 feet long by 200 feet wide constructed of brick side walls and a metal roof. The north one-quarter of the building is three stories tall with the remaining southern three-quarters being two and one-half stories tall. The southern three-quarters appears to be where the warehouse operations were performed. Currently, inside the building miscellaneous garbage, debris, and various piles of mixed wastes (metal, plastic, cardboard, etc.), was noticed on the concrete floor surface. Also observed were approximately 200 empty 55-gallon steel drums. 100 of these are located in the main room and another 100 in the north room of the structure. Approximately 20 empty 55-gallon steel drums were also located on the loading dock. Some of the drums were noted to have yellow Hazardous Waste labels attached to them. The drums were noted to be in various conditions of deterioration. Because site activities ceased sometime in the recent past the building and grounds

have fallen into disrepair.

3.2 X-RAY FLUORESCENCE (XRF) SURVEY RESULTS

On September 12, 2003 personnel from the IEPA Office of Site Evaluation collected field based soil data with a Niton 700 Series XRF unit. Twenty-nine soil locations were analyzed around the outside of the facility structure and the surrounding area within the property boundary. In addition to the twenty-nine soil locations, six locations were analyzed inside the structure. A variety of material deposited on the concrete floor of the structure was sampled with the XRF. An aerial photograph of the Shanfeld property and surrounding area has been supplemented with the locations of all XRF sample locations (Figures 3, 4 and XRF Location Map). No particular pattern of contamination emerged from analysis of the sample results. Contamination was not limited to one particular area, such as immediately adjacent to the building or loading dock, but, was also noted at various locations away from the building. A summary of all thirty-five XRF readings is presented in Table 1 of this document.

4.0 INITIAL PATHWAY ANALYSIS

4.1 GROUNDWATER

The Shanfeld Iron & Metal Company site is situated on relatively flat terrain of the Mississippi River flood plain referred to as the American Bottoms. Geology of the area consists of the American Bottoms, containing unconsolidated valley fill deposits composed of Cahokia Alluvium, overlying glacial till material of the Henry Formation. The glacial till is underlain by Mississippian age limestone and dolomite bedrock with minor layers of sandstone and shale interbedded. The Cahokia Alluvium includes the deposits, in the floodplain and channels, of rivers and streams throughout the state. Locally the alluvium is approximately 40 feet thick and consists of poorly sorted silt, clay, and silty sand with some interbedded sand and gravel lenses. This material becomes coarser with depth. The alluvium deposits unconformably overlie the Henry Formation which is approximately 95 feet thick at the Mississippi River and thins with distance from the river. These valley-train materials are generally medium - coarse sand and gravel which also increase in grain size with depth. Previous drilling programs conducted near the East St. Louis area have determined that the Alluvium consists of fine gray and brown sand up to 40 feet below land surface. Unconsolidated deposits range from 140 feet thick near the river to 110 feet thick 1½ miles east of the river near the Shanfeld property. The direction of groundwater flow in the American Bottoms area varies, reflecting changes of river stages. During normal stages groundwater flows toward the river. During high water or flood stages groundwater flows away from the river.

Most area residents and businesses obtain their drinking water from the Illinois American

Water Company (IAWC) which utilizes three intakes in the Mississippi River. All three are located upstream of the Shanfeld facility, one at Alton, Ill. (river mile 202); another at Chouteau Island (river mile 191.6), and the third is located at East St. Louis (river mile 180.8). There are, however, a few individuals approximately one mile from Shanfeld still using ground water wells. Public and private wells utilize the shallow sand and gravel alluvial and glacial outwash deposits of the American Bottoms for drinking water supplies. However, the Illinois State Water Survey (ISWS) database indicates that there are no public water supplies within four miles of the Shanfeld property. Approximately 100 – 125 private wells exist within a four mile radius of the subject facility. While there is a potential for area groundwater to have been impacted it is unlikely that the surrounding population is being affected, as the nearest private drinking water well is approximately one mile southeast of the facility.

4.2 SURFACE WATER

The surface water runoff route for this property is described as follows: any excess moisture caused by precipitation flows into low areas on the property resulting in ponding and either evaporates or percolates into the soil on site. If excess moisture runs off site it flows to city streets where curb storm drains direct flow into the City of East St. Louis sewer system. According to USGS topographic maps there are no perennial or intermittent waterways within 1.8 miles of the Shanfeld property. It does not appear that a release to the surface water pathway is a concern associated with this site. A review of a Federal Emergency Management Agency map for incorporated areas of St. Clair County indicates that the facility is located

outside of the 100 year floodplain.

4.3 SOIL EXPOSURE

The soil exposure pathway appears to be the primary concern associated with the Shanfeld facility based upon information gathered during the 2003 Pre-CERCLIS Screening Assessment. The facility is located in an urban setting of mixed light industrial and residential properties. While there are no indications that the property is used for recreational purposes, there is limited fencing in place to deter trespassing. Given the proximity of the residences the probability is high that the property is used by neighborhood trespassers from time to time. It should be noted that the site does have moderate vegetative cover which may mitigate some risk of exposure. However, because the site was utilized by companies operating smelting and foundry facilities beginning near the turn of the century, lack of environmental controls until the 1970's, and due to the detection of various heavy metal analytes, in excess of USEPA removal action criteria, on the soil surface and within the site structure, the potential for exposure to contaminated soil exists. Because the Shanfeld property is as close as one block from some residences USEPA Removal Action Levels (RAL's) for residential properties are used for evaluation of site conditions and potential for exposure of residents to contaminated soil. Analysis of XRF samples indicates RAL's for iron (230,000 mg/kg) are exceeded at one soil sample location (#17) and two locations (#30 & #32) within the facility structure. RAL's for lead (400 mg/kg) are exceeded in eleven soil sample locations (#'s 3, 14, 15, 17 – 21, 24, 25, & 27) and five locations (#'s 30 – 34) within the facility structure. Reference Table 1 of this report

for XRF sample locations and associated data.

4.4 AIR ROUTE

During the September 12, 2003 reconnaissance a Foxboro Toxic Vapor Analyzer (TVA) was utilized to screen ambient air around the facility, air in the breathing zone, and air in the building. All readings registered at background levels of approximately 2.5 units. There are no records, reports or complaints on file of air releases from the facility or odors emanating from the site. As mentioned previously, the facility has various types of vegetative cover that will assist in preventing some airborne migration of windblown particulates. However, there are enough bare or slightly vegetated areas on the property to allow wind blown particulates to migrate from the facility. Due to the detection of various heavy metal analytes on the soil surface and within the site structure, the potential for contaminated airborne particulates to be released via the air pathway is a concern.

5.0 REFERENCES

Bureau of the Census, County and City Data Book, 1990 U.S. Census Data.

Rockford Map Publishers, 1996, Land Atlas and Plat Book, St Clair County, Illinois.

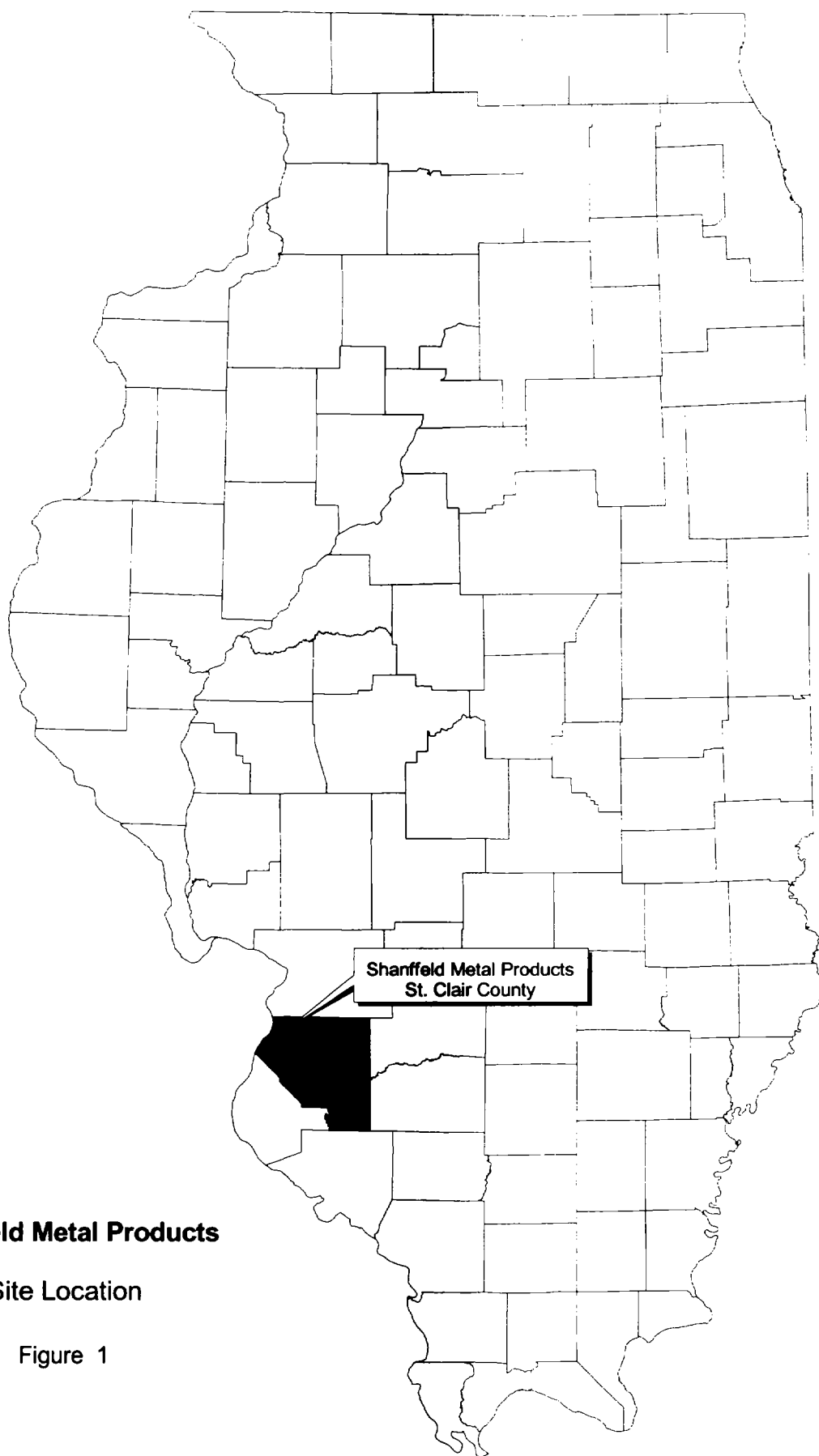
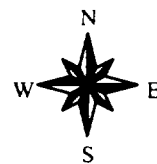
Selkregg, Lidia F., & Kempton, John P., Groundwater Geology in West-Central Illinois, A Preliminary Geologic Report, Illinois State Geological Survey Circular 248, 1958.

State of Illinois, Department of Energy and Natural Resources, 1954, Revised 1993, Monks Mound, Illinois, 7.5 Minute Topographic Map.

State of Illinois, Department of Energy and Natural Resources, 1954, Photorevised 1982, Granite City, Illinois, 7.5 Minute Topographic Map.

State of Illinois, Department of Energy and Natural Resources, 1954, Photorevised 1968 and 1974, Cahokia, Illinois, 7.5 Minute Topographic Map.

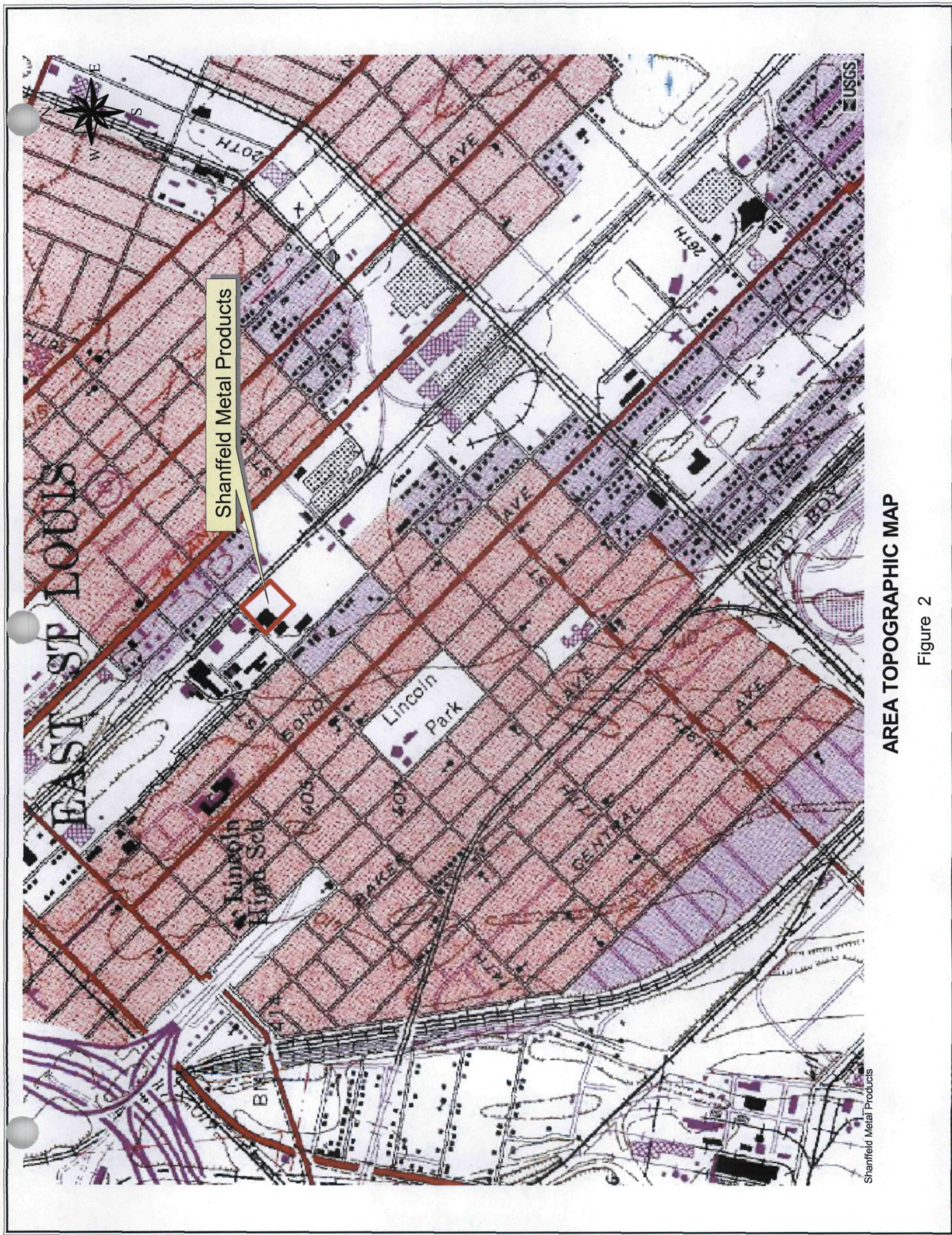
State of Illinois, Department of Energy and Natural Resources, 1954, Photorevised 1982, French Village, Illinois, 7.5 Minute Topographic Map.



Shanffeld Metal Products

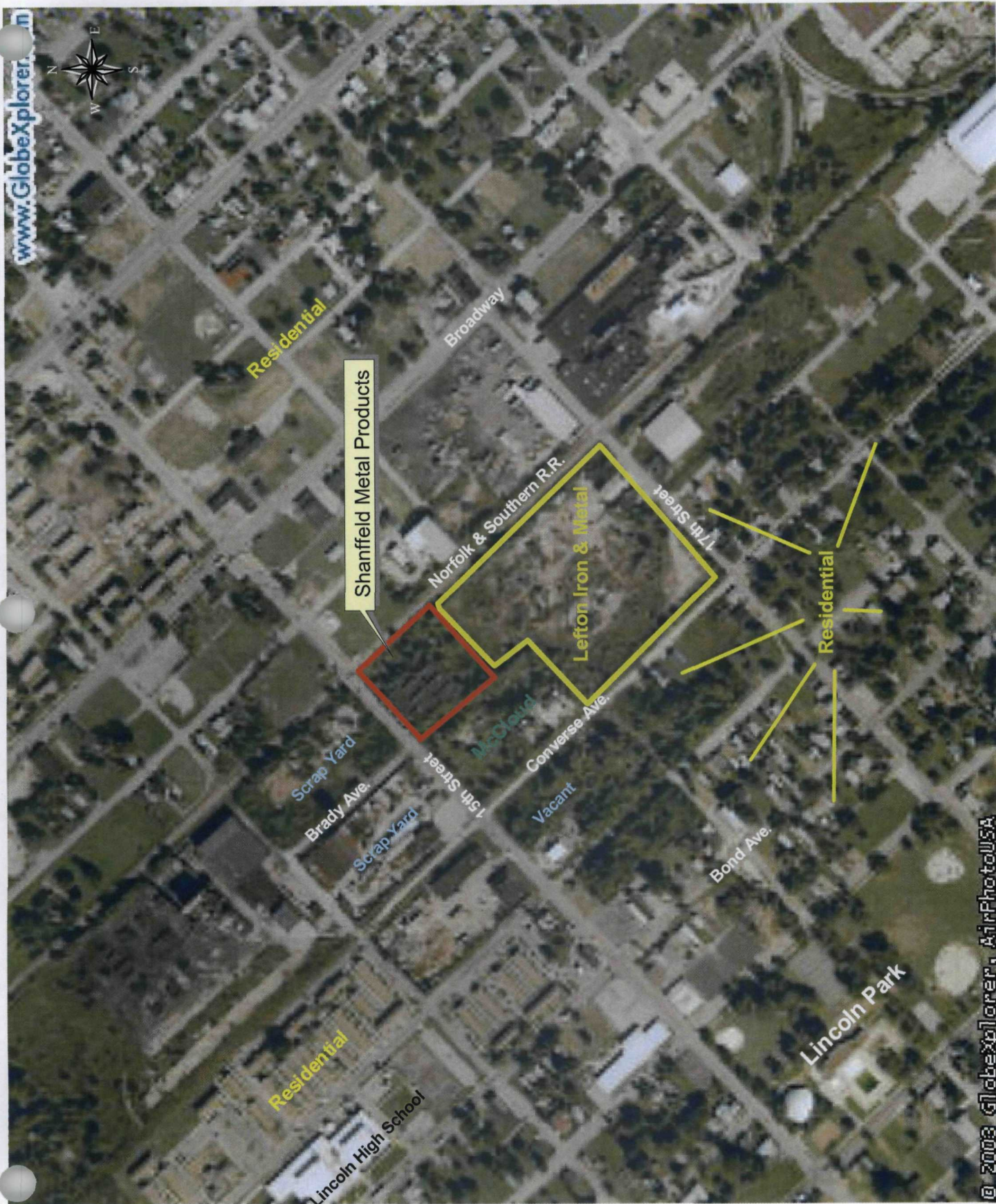
Site Location

Figure 1



AREA TOPOGRAPHIC MAP

Figure 2



SITE AREA MAP

Figure 3



● XRF Location in Building
● XRF Location Outside Building

SHANFFELD E. METAL PRODUCTS
Figure 4

Shanffeld



Norfolk &

Fence



SHANFFELD METAL PRODUCTS
XRF Locations 9-12-03

E. St. Louis, IL

SHANFELD IRON & METAL COMPANY

E. St. Louis, Illinois
XRF Screening Data

TABLE 1

ANALYTE	Arsenic	Barium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Nickel	Strontium	Zinc
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date	9/12/2003	9/12/2003	9/12/2003	9/12/2003	9/12/2003	9/12/2003	9/12/2003	9/12/2003	9/12/2003	9/12/2003	9/12/2003
RAL (mg/kg)**	230	55000	780000	47000	31000	230000	400	18000	16000	470000	230000
Reading Number											
1						19392	387				452
2						12396	296				399
3						21696	1040		550		2229
4		267									
5					205	20992	286				799
6						11200	271			118	502
7						8224	251				386
8	42				160	10195	327				658
9						24397	311				869
10						25894	213	1610			366
11						12000	247				630
12						21299	303				694
13						20493	226		592		386
14				739	240	30285	852				1450
15				895		56986	726		349		1949
16						22298	172				294
17				4138	381	265830	986		809		2229
18						34688	501				4589
19				2000		79360	1330				1600
20				2890		141926	1120				1370
21				1140	497	76800	1680		650		2840
22						19994	336		606		1030
23			1899			22093	220				730
24				1290	228	84378	1080				2080
25	67				466	20390	516		758		914
26						10598	240		1270		557
27			1180	1170		53760	609		585		3690
28		534									
29						12800	40		707		125
30*	111		5200	4698		612762	524				4467
31*			2339	1810		58266	1180				6989
32*			3747			292864	539				4947
33*				2440	391	82176	432				2890
34*				3869		74189	450				1659
35*						208998	255				2480

* Indicates screening was done in the site building on a concrete floor covered with various material.

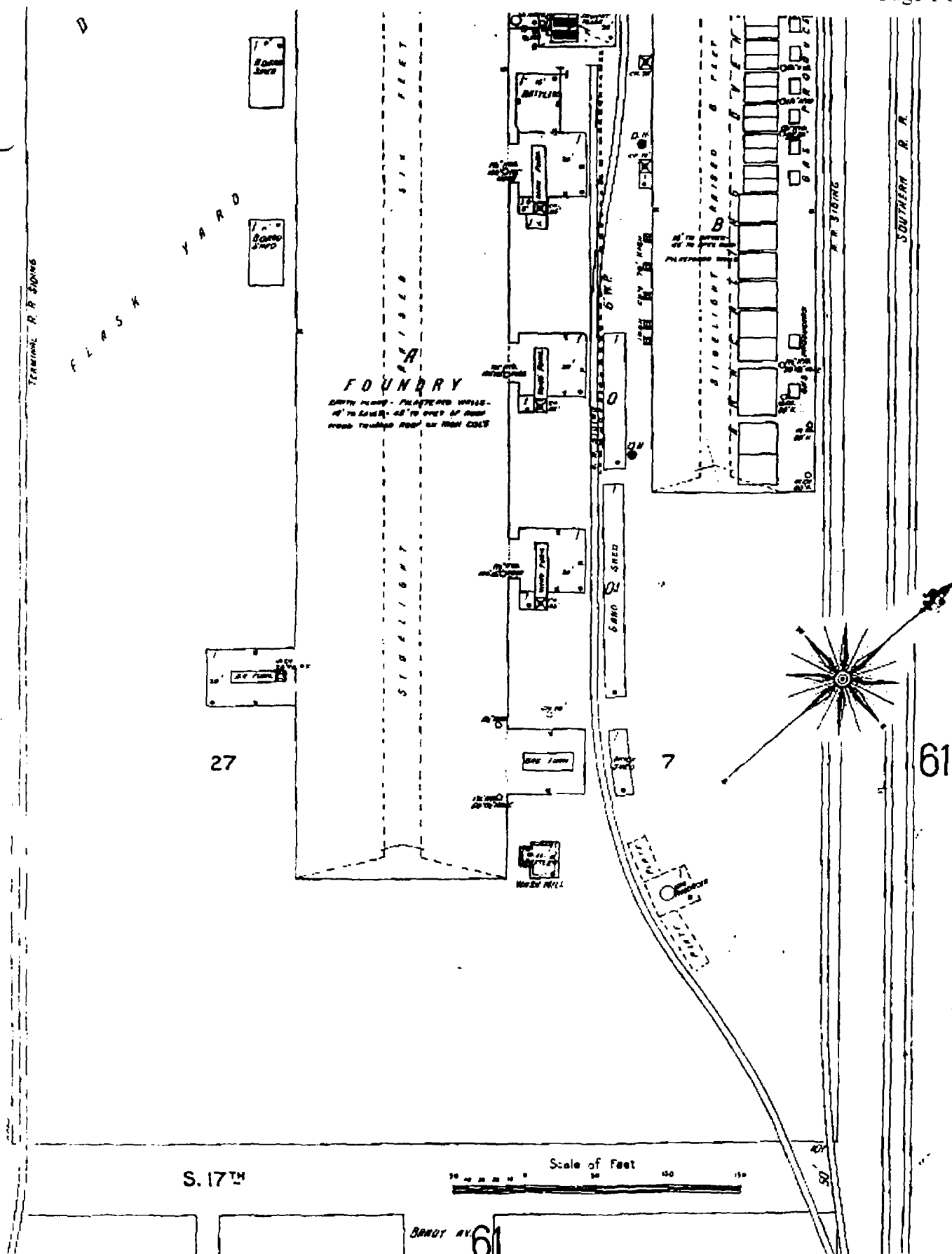
- All XRF samples of the soil were collected from the soil surface. All XRF samples collected within the building were obtained from the concrete floor surface.

- **Residential RALs are being used for comparison due to the facilities proximity to residential neighborhoods.

APPENDIX A

Sanborn Fire Insurance Maps
1905, 1944, 1955







GROUP 1
SERIAL 10
ADD 601944

